APPROVED BY:

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GS PROCEDURE

OVERHEAD SIGN FOUNDATIONS

Procedure: DES/GS 01-2006
Effective: March 1, 2006

Geotechnical Services staff shall follow the guidelines, as outlined in this GS Procedure, for the foundation investigation and report preparation of Standard Plan Overhead Signs. This procedure applies only to Standard Plan Overhead Sign projects that are prepared by the Districts, and not Changeable Message Signs (CMS), Electrical System foundations, or Structures Design special design sign foundations.

Background:

Foundation information is often requested by the Districts for Standard Plan Overhead Sign projects. These foundation designs consist of CIDH piles up to 5 feet in diameter and 33 feet deep, or spread footings up to 26 feet in width. Recent changes to the Standard Plans have increased the foundation sizes due to increased loading requirements. The pile foundation designs in the Standard Plans are based on the 2001 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, article 13.6, Broms' approximate procedure for cohesionless material, assuming an angle of internal friction of 30 degrees and unit weight of soil of 120 pcf. In general, these are very conservative assumptions but do not address sloping ground conditions, or soils that may be weakened under seismic loading.

Overhead Sign Foundation Report Guidelines:

Foundation Reports shall be prepared when requested for all Standard Plan Overhead Signs and address the following considerations:

- The existing ground conditions for the proposed foundation should meet the minimum assumed design parameters in the Standard Plans.
- Constructablility concerns, such as caving ground, high ground water, or difficult drilling conditions.

Subsurface exploration, such as drilling, will not be necessary for all sign locations if available information is sufficient to adequately address the design assumptions and constructability concerns in the Foundation Report. If problematic soils, such as weak or liquefiable soil, and/ or sloping ground are identified, detailed subsurface exploration may be necessary. If the geotechnical professional preparing the report determines that the assumed minimum design parameters in the Standard Plans are not applicable at the site, or if the constructability of the Standard Plan foundation is a significant concern, then the District should request that DES-Structure Design develop a special design for the sign foundation.

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